Attachment 6

Ballona Wetlands Restoration Plan
Goals and Objectives,
Opportunities & Constraints

The purpose of this document is to identify key characteristics of the project area that present opportunities for achieving the restoration planning goals and objectives as well as those that may limit (or place constraints on) the achievement of those goals and objectives. The ideas listed below tend to be generalized, this document is an effort to take information about the existing conditions of the area and assess what that information tells us about achieving the project's goals and objectives.

This table does not evaluate the relative importance of specific opportunities or constraints and there are internal inconsistencies among the opportunities and constraints identified. Inherent in some of the opportunities are preferences, priorities and approaches to wetland restoration and because of these differences, some conflict with one another. The purpose of this document is not to resolve these potential conflicts, but rather to be sure there is a common understanding of the project area's potential for achieving the fullest range of goals.

Goal 1: Ecosystem Restoration: Restore, enhance, and create estuarine habitat and processes in the Ballona Ecosystem to support a natural range of habitat and functions, especially as related to estuarine dependent plants and animals.

Sub-goal 1. Habitat: Preserve, restore, enhance, and create a variety of functional wetland, estuarine and other habitats representative of the Ballona Ecosystem.

Objectives:

a. *Support existing and future habitat based on identified regional needs*

b. *Create spatial connectivity within the site*

c. *Create appropriate edge habitat and connectivity to adjacent areas of the Ballona Ecosystem*

d. *Provide landscape-level function at a regional scale addressing habitat/landscape patches, corridors, connectivity and mosaics landscapes. Provide habitat for migratory birds, fish nurseries, etc.*

Opportunities	Constraints
Preserve, restore, enhance, and create multiple habitats historically associated with both the Ballona Wetlands and the region.	Because the size of the site is limited, it may not be possible to incorporate large enough patches of all historic habitat types to ensure their viability.
Restore and create fully tidal wetland habitat	Habitats are fragmented by the existing roads, infrastructure and surrounding development
Preserve and enhance seasonal ponding areas	Existing habitats on site could be displaced by future enhancement, such as the restoration of tidal inundation
Create regional habitat linkages and corridors	Site has been filled, existing soil types may not be appropriate for reestablishment of all historic habitats
Incorporate adjacent upland habitats along with transitional habitats linking wetlands and uplands.	
Restore diverse habitats based upon gradients of elevation, hydroperiod and salinity	

Sub-goal 2. Biodiversity: Preserve and increase the native biodiversity of the Ballona Ecosystem. Identify and protect multiple levels of diversity (e.g. species, habitats, biogeographic provinces and trophic structure).

Objectives:

a. *Increase diversity and populations of rare and endangered plant and animal species.*

b. *Establish and maintain diverse native plant communities, including vascular plants, algae, and diatoms.*

c. *Support a diverse complement of species including: birds, fish, amphibians, reptiles, native aquatic and terrestrial invertebrates.*

Opportunities	Constraints
Restore biodiversity historically associated with the region, including common, rare and locally extirpated species.	Implementation of restoration efforts will entail impacts to existing species to some degree and may need to be mitigated in some way
Strategically design habitat to ensure recruitment and survival of targeted species	Site may too small and isolated to support some species
Restore microhabitats that support various life stages of species	May become a biological sink as a result of invaders, predators or other impacts
	Restricted tidal connection could limit the species of fish that can be established

Sub-goal 3. Physical/Chemical Processes: Maintain and establish physical and chemical processes consistent with the restoration goals.

Objectives:

a. *Improve tidal circulation and enlarge the amount of area that is tidally inundated.*
b. *Manage surface and subsurface freshwater inflows to support desired on-site habitats.*
c. *Establish and maintain a sediment transport regime that supports the desired wetland functions.*
d. *Re-establish a dynamic range of hydrologic conditions (intensity and duration) to support natural ecosystem processes.*
e. *Establish and maintain biogeochemical processes representative of natural wetland ecosystems.*

Opportunities	Constraints
Increase tidal flow into the site	Flood conveyance in Ballona Creek Channel needs to be maintained
Improve tidal connectivity within the site by enlarging existing channels and culverts, and creating new channel networks	Existing tidal connections are insufficient to create and maintain a significant area of natural tidal wetland
Improve management of tide gates to create a muted tidal system with long-term management of water levels	Elevations are too high, fill disposal will be difficult
Change the roads and berms to improve habitat connections, reduce flood hazards and accommodate sea-level rise	Existing infrastructure may limit hydrologic connections within the site
Include distributary channels in the bluff deltas for coarse sediment distribution where feasible	Urban watershed negatively impacts sediment supply, water quality and hydrograph of potential freshwater sources
Restore a more natural tidal slough system linking freshwater areas to tidal marsh	Natural channel formation may be limited due to lack of tidal scour, high elevations, soil type and absence of antecedent channel network
Enhance historic Centinela Creek in Area B by increasing freshwater flows.	Limited supply of fine sediments to the site may limit march evolution over time
Reduce current flooding problems around the project area	Low-lying properties around the periphery of the site may need to be protected from flooding
Daylight outlet culvert of the Freshwater Marsh	The upstream reach of Centinela Creek has been diverted.

Physical/Chemical Processes, continued

Opportunities	Constraints
Modify Ballona Creek levees by realignment or changing the form of the bank	
Coordinate the management of tide gates in the Ballona Ecosystem (Del Rey Lagoon, Ballona Lagoon & Ballona Wetlands)	

Sub-goal 4. Sustainability: Facilitate the conservation and restoration of natural resources in a manner that maintains and improves the ecological integrity, function, diversity and productivity for future generations.

Objectives:

a. *Accommodate potential sea level rise for transitional habitat provide appropriate elevations to accommodate habitat shifts*
b. *Use self-sustaining, low maintenance systems where possible*
c. *Minimize future adverse effects of nuisance species, including non-native, invasive species, feral predators and disease vectors.*
d. *Protect the wetlands from adverse impacts caused by contaminants in influent water or sediment.*
e. *Plan for the longterm management of the site*

Opportunities	Constraints
Accommodate rising sea level by using site slope to allow habitat migration	Future development of surrounding areas
Provide sufficient tidal flow to maintain channel system	Maintenance and management resources have not been identified
Incorporate principles of adaptive management in restoration design to phase implementation and test different methods	Some sources of water and sediment to the site may be contaminated, those contaminants may accumulate in the restoration area
Utilize (or employ) existing organizations to maintain and implement stewardship activities at the site	Accumulation of contaminants or pollutants on the site: including trash and aerial deposition
Use low maintenance processes to improve water quality of urban runoff entering the wetlands	Site vulnerable to invasive species, onsite and from local area
Design site to minimize the impacts of streetlights, traffic noise and other urban characteristics on habitat values	Rising sea level may inundate low lying areas
Reduce management costs associated with tide gates	Infrastructure, such as gas facilities, needs to be maintained

Goal 2: Social and Socioeconomic Values: Create opportunities for aesthetic, cultural, recreation, research and educational use of the Ballona Ecosystem that are compatible with the environmentally sensitive resources of the area.

Sub-goal 1. Public Access: Design enhanced access to and within the Ballona Ecosystem consistent with ecosystem preservation and restoration values in a safe, consistent, coherent and functional manner.

Objectives:

a. *Develop gateway entrances that attract, welcome and inform ecosystem visitors.*
b. *Phase-out inappropriate or uncontrolled access points.*
c. *Create public outreach, education and interpretive opportunities for visitors, organizations and institutions.*
d. *Develop appropriate signage that enhances visitor understanding of wetland restoration efforts; increase public awareness of local biological and physical resources present within Ballona Wetlands.*
e. *Develop overlooks and connections accessible to pedestrian, bike and bus users and provide the appropriate signage to facilitate such access.*
f. *Provide potential opportunities for the public to participate in restoration and monitoring efforts.*

Opportunities	Constraints
Develop parking areas and designated entry points for the public on currently disturbed or developed areas.	Informal access points and associated unauthorized and uncontrolled uses
Develop interpretative components to educate the public on the values of wetland functions and habitat, build on existing educational programs	Public access areas reduce the area available for restoration
Design access with buffers between people and sensitive habitat areas	
Install facilities to serve visitors of the site	
Improve overlook points. For example, potential to use sediment material onsite to create high points	
Install consistent signage	

Public Access, continued

Opportunities	Constraints
Provide access that serves people with disabilities	
Incorporate educational and stewardship activities into the Little League program	

Sub-goal 2. Cultural Access and Preservation: Initiate formal and informal consultation with representatives of the Gabrielino/Tongva Tribal Council to develop guidelines that contribute to the preservation of sacred and cultural sites.

Opportunities	Constraints
Provide access for cultural use of the site by native people	Protection of cultural resources on site may constrain site design
Preserve cultural resources onsite	
Educate the public regarding archaeological and historic resources	

Sub-goal 3. Recreational Use: Design site to accommodate an appropriate level of fishing, boating, walking, and other activities consistent with the Ecological Reserve Designation and ecosystem restoration values.

Objectives:

a. Provide public trails and viewing areas around the perimeter of the wetlands with interpretive displays at selected locations.

b. Concentrate potentially incompatible human activities in non-sensitive areas

Opportunities	Constraints
Develop a recreational plan compatible with the Ecological Reserve designation	Existing unauthorized uses, such as BMX use and dog walking, may be incompatible with Ecological Reserve designation
Integrate existing trails, features and disturbed areas into the designated trail network.	
Integrate trail network with local and regional trails, bikeways and transportation systems	

Sub-goal 4. Public Safety and Security: Design public access so that the wetlands are a safe place to visit.

Objectives:

a. *Design access to minimize maintenance costs*

b. *Provide access points at locations responsive to the needs of law enforcement.*

c. *Create and maintain access points in a manner that minimizes safety concerns and hazards.*

Opportunities	Constraints
Provide for a safe visitor experience through site design	Major roadways cross the site, fast moving traffic, limited places for parking
Consolidate Gas Company facilities, separate from habitat areas and public access	Poorly secured site, hard to control all unauthorized access in an urban setting
Improve traffic-related safety concerns through crosswalks, walkways and safe parking areas	Unknown extent of methane or other potentially harmful substances
Improve emergency access to the site	Need to protect public health by limiting disease vectors (such as mosquitos)